ABSTRACT

The present invention relates to a substrate and a method for obtaining an electrophysiological measuring configuration in which a cell forms a high resistive seal (giga-seal) around a measuring electrode making it suitable for determining and monitoring a current flow through the cell membrane. The substrate is typically part of an apparatus for studying electrical events in cell membranes, such as an apparatus for carrying out patch clamp techniques utilised to study ion transfer channels in biological membranes. The substrate has a plurality or an array of measuring sites with integrated measuring and reference electrodes formed by wafer processing technology. The electrodes are adapted to conduct a current between them by delivery of ions by one electrode and receipt of ions by the other electrode and are typically silver/silver halide electrodes. This allows for effective and fast measuring of cells in configurations where the there is a direct electrical connection between the measuring electrode and the cell interior, a whole-cell measuring configuration.